

# Intelligent System of Interaction & Recognition for Computer-Human Interfaces

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## Abstract-

The Human-Computer Interaction systems are the essential and emerging technology in the perspective of the computer vision trends now a days. The intelligent interaction of Human with the computer systems as on the user's side, is constrained by the nature of human communication organs and abilities like motions, posture, hand gestures, pointing gestures and other visual cues; on the computer side, it is constrained only by input/output devices and methods that we can invent. The real-time nature of such systems shifts the focus away from complex trackers that rely on heavy iterative optimizations, as they require too much computation time for processing. The proposed work is of two methods. The difference between these two models namely model based and example-based approaches, is that in example-based approaches the current pose or gesture is detected from a database of preset poses or gestures. The benefit of such approach is that the system can be much faster, as compare to other.

## Keywords-

Pose/Gesture research through design, design theory, design method, interaction design

## I INTRODUCTION

The system is designed to be unnoticeable (marker-less) and fast enough (real-time) to provide a smooth user interaction. Such systems are useful as technically improved Computerized systems which are more improved than traditionally keypad, mouse-based systems towards more Natural gestures like scroll wheels, multi-touch interfaces. Real-time analysis of human body poses or hand gestures enables to develop new, more natural interfaces. Human-Computer Interaction, Recognition and Detection System is the visual interaction between a human and a computer system, through various motions, posture, hand gestures, pointing gestures and other visual cues. The proposed system can be either a standalone system, or an additional system to make another (e.g. speech based, gesture based) system more robust. The relationship between basic research and application development in this area ideally forms a circular chain: specific interface problems, encountered in applications are generalized and then solved in basic research by inventing new interaction modes or techniques; and these general approaches can then be applied to the development of specific user interfaces. The challenge before us is to design new devices and types of dialogues that better fit and exploit the communication-relevant characteristics of humans. According to Diaper (2005) the chronology of Human Computer

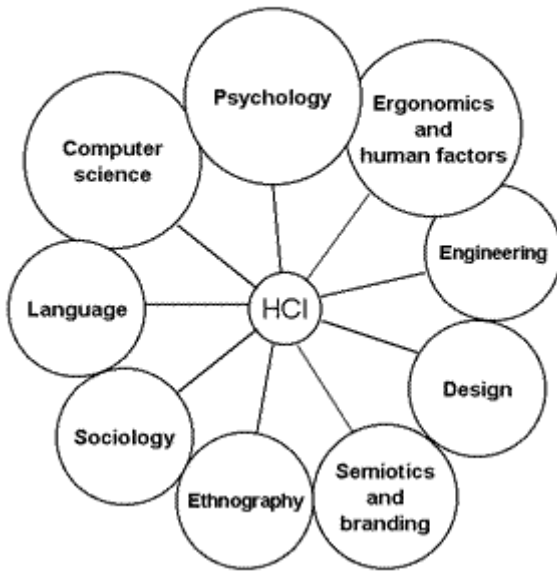
Interaction starts in 1959 with Shaker's paper on "The ergonomics of a computer" which was the first time that these issues were ever addressed. This was followed by Licklider who produced what has come to be known as the seminal paper (1960) on "Man - Computer Symbiosis" which sees man and computer living together. Now it is emerging trends in many application areas and various papers and research work is going on.

Human Computer Interaction relating to human psychology. Specific examples of research in the areas of icons and menus are then reviewed. The results of these experiments and the predictions they make about general human psychology and specific human interaction with computers is discussed. To understand the fundamentals of Human Computer Interaction, and how it relates to human psychology and physiology

## II HUMAN COMPUTER INTERACTION

In engineering design, developers created software to meet a specification, and in creative design, designers continually reframed the problem, constantly questioning the underlying assumptions during the design process. Human Computer Interaction community meant usability Engineering: "It is the process of modeling users and systems and specifying system behavior such that it fitted the users' tasks, was efficient, easy to use and easy to learn." In Human-Computer Intelligent Interaction, the three dominant clusters of research are currently in the areas of face analysis, body analysis, and complete systems which integrate multiple cues or modalities to give intuitive interaction capabilities to computers.

## The Field of HCI (Human Computer Interaction)



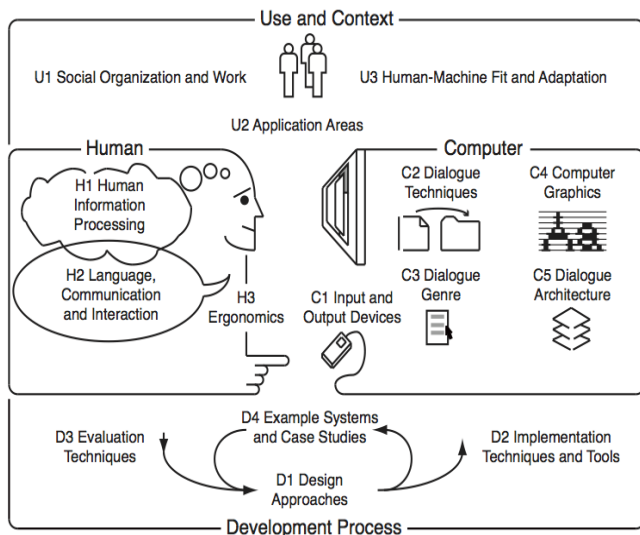
Face and human body analysis include modeling the face or body and tracking the motion and location. They are considered fundamental enabling technologies towards Human computer interaction. Understanding the dynamics of the human face is certainly one of the major researches Challenges. The potential of the following work is toward detecting and recognizing emotional states and improving computer to human communication.

classification of object/persons in an image, edge detection is an essential tool. In each case there is an intricate scheme for classification, based on overall shape (elliptical, circular, etc.), type and degree of irregularities (convex, rough or smooth outline, etc.), internal structures (holes, linear or curved features) that has been accumulated over many years of observation. Artificial imagination approach to allow the computer to create example images to improve relevance feedback in image retrieval In the Human Computer Interaction community and in the design practice community, the term design research is generally used to refer to the upfront research practitioners do to ground, inform, and inspire their product development process.

### IV CONCLUSION

It can lead to faster and more natural communication with interactive systems, enable better quality and efficiency in the operation of such systems, and improve the working conditions of their users by providing them with richer and more natural means of communication.

The central mechanisms directing behavior cut across channels, so that, for example, certain aspects of face, body, and speech are more spontaneous and others are more closely monitored and controlled. It might well be that observers selectively attend not to a particular channel but to a particular type of information. No investigator has yet explored this possibility or the possibility that different individuals may typically attend to different types of information. Human Computer Interaction becomes more complicated when the modern technologies will used to do the interaction.



### V FUTURE SCOPE

The central mechanisms directing behavior cut across channels, so that, for example, certain aspects of face, body, and speech are more spontaneous and others are more closely monitored and controlled. We have highlighted major vision approaches for different modal human-computer interaction. We discussed techniques for largescale body movement, gesture recognition, and gaze detection. We discussed facial expression recognition, emotion analysis from audio, user and task modeling, multimodal fusion, and a variety of emerging applications.

There is no evidence that individuals in actual social interaction selectively attend to another person's face, body, gesture, or speech, or that the information conveyed by these channels is simply additive.

### III RESEARCH GOAL

Although recent research has shown improved performance by embedding the color components, the effectiveness of color information in the RGB color space in terms of recognition performance depends on the type and angle of light source, often making recognition impossible. Poses, motions and gestures are detected using example-based approaches, rather than full-body tracking or articulated hand tracking. Different classification algorithm can be implemented as per the object/person. Computer vision involves the identification and

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